



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/651,783	08/30/2000	Shuichi Kanno	NIP-198	2461

24956 7590 07/28/2004

MATTINGLY, STANGER & MALUR, P.C.
1800 DIAGONAL ROAD
SUITE 370
ALEXANDRIA, VA 22314

EXAMINER

NGUYEN, NGOC YEN M

ART UNIT	PAPER NUMBER
----------	--------------

1754

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/651,783	Applicant(s) KANNO ET AL.	
	Examiner Ngoc-Yen M. Nguyen	Art Unit 1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3,4 and 11-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-4, 11-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 15-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicants are requested to point out support in the instant specification, by page and line numbers, for the limitations "from 10 meters per second to 30 meters per second" and "said cyclone comprises any material selected from the group consisting of polyvinyl chloride and acrylic resin" as required in the instant claims 15, 16.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-4, 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 885 648 in view of either JP 11-216,455 or Lang et al (6,235,256).

EP '648 discloses a process for decomposing fluorine compounds, comprising the steps of contacting a gas flow containing the fluorine compounds, which comprises fluorine as a halogen element, and any of the elements carbon, nitrogen and sulfur as a compound with the fluorine, with a fluorine compound-decomposition catalyst in the presence of steam to hydrolyze the fluorine compound in said gas flow, wherein said gas flow containing said fluorine compounds is contacted with a catalyst comprising Al to convert said fluorine compounds to hydrogen fluoride (note claim 1). In the equation 4 and 5 on page 3 of EP '648, when SF_6 or NF_3 is being decomposed, SO_3 or NO is formed. In the embodiments 6 and 7, SF_6 or NF_3 is diluted with air or nitrogen, the resulting gas is contacted with a catalyst to decompose the fluorine compound. The decomposed gas is scrubbed in an alkaline scrubber (note page 10, lines 1-25).

EP '648 discloses that sulfur oxides such as SO_2 , SO_3 and the like, and nitrogen oxides, such as NO , NO_2 , and the like, are generated in some cases. In order to neutralize and eliminate these products, a method of scrubbing the decomposed gas by spraying an aqueous alkaline solution is desirable (note paragraph bridging pages 3-4). Thus, the scrubbing step is considered as the step of removing SO_x and NO_x from the washed gas.

The difference is EP '648 does not disclose the step of removing SO_x or NO_x from the decomposed gas after scrubbing by passing the gas after the scrubbing step through a cyclone or demister.

JP '455 discloses a process for treating an exhaust gas generated in a process of making printed circuit board by passing the exhaust gas through a catalytic thermal decomposition device 4 and the waste gas cleaning device 5 and discharged as a harmless exhaust gas 6 (note English abstract). As shown in Figure 3, the exhaust gas after scrubber 5 is introduced into a cyclone 8. Here the moisture within the exhaust gas is removed and recycled back to the scrubber 5 thereby minimizes the requirement of fresh scrubbing liquid. JP '455 further teaches that a demister can be used instead of a cyclone (note paragraph 0036).

For the instant claims 15-16, it would have been obvious to one of skill in the art to optimize the inlet velocity to effectively remove the moisture from the exhaust gas and to select an appropriate material for the construction of the cyclone to withstand the condition of the process.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to pass the exhaust gas after the scrubbing step in EP '648 to a cyclone or demister, as suggested by JP '455, because by doing so, the moisture can be removed from the gas and recycled to the scrubber thereby minimizes the requirement of fresh scrubbing liquid. Such step would inherently remove any remaining NO_x or SO_x from the washed gas.

Alternatively, Lang '256 can be applied. Lang '256 discloses a process for scrubbing acid gases. In the process, the improvement is a demister arranged at a location after the liquid droplets have been sprayed by the spray means into the flow path of the flue gases (note column 3, lines 8-43 and claim 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to pass the exhaust gas of EP '648 to a demister, as suggested by Lang '256 in order to obtain the advantages as disclosed in Lang '256 (note, for example, column 1, lines 44-50).

Claims 3-4, 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanno et al (PGPub US 2001/0001652) in view either JP 11-216,455 or Lang et al (6,235,256).

Kanno '652 is an US counterpart of EP '648.

Kanno '652 discloses a process as mentioned for EP '648 (note claim 1, Examples 11-12).

The difference is Kanno '652 does not disclose the step of removing NO_x or SO_x after the scrubbing steps.

JP '455 or Lang is applied to teach the step of passing the gas after the scrubbing step to a cyclone or demister.

Applicant's arguments filed May 12, 2004 have been fully considered but they are not persuasive.

Applicants argue that neither secondary reference discloses or suggests the improvement of removing at least one of SO_x and NO_x accompanying water or mist.

Even though the secondary references do not disclose or suggest the removal of at least one of SO_x and NO_x accompanying water or mist, however, they fairly teach the desire of removing the moisture from the exhaust gas for the reasons as stated in the

Art Unit: 1754

above rejection. Applicants discover another reason to do what the art suggests to do does not make the original reason unknown or unobvious, In re Dillon, 16 USPQ 1897, en banc (Fed. Circ. 1990). The removal of at least one of SO_x and NO_x accompanying water or mist would be an inherent effect when the moisture is removed as disclosed in the second reference.

Applicants argue that JP '455 does not disclose the decomposition of a PFC gas resulting in the decomposition of at least one of SF_6 and NF_3 , which are subsequently washed by contact with at least one of water and an aqueous alkaline solution.

JP '455 is not relied upon to teach the decomposition of PFC gas. In both EP '648 and JP '455, a scrubbing step is used and JP '455 teaches the step of removing the moisture of the exhaust gas from the scrubbing step and the step of recycling the recovered moisture to minimize the requirement of fresh scrubbing liquid, thus, it would have been obvious to do the same for the process of EP '648 in order to achieve the same advantage.

Applicants argue that the dehydration by cyclone in JP '455 is to remove moisture only.

When the dehydration by cyclone as disclosed in JP '455 is applied to the process of EP '648, the removal of at least one of SO_x and NO_x accompanying water or mist would be inherent. It should be noted that the motivation for combining the applied reference does not have to be the same as that of the claimed invention.

The rejection over EP '648 in view of Lang is maintained for the same reasons.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

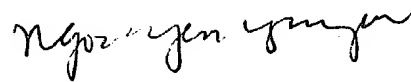
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc-Yen M. Nguyen whose telephone number is (571) 272-1356. The examiner is currently on Part time schedule.

Art Unit: 1754

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Stan Silverman can be reached on (571) 272-1358. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed (571) 272-1700.



Ngoc-Yen M. Nguyen
Primary Examiner
Art Unit 1754

nmn
July 26, 2004